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Pest Management in Stored Grain

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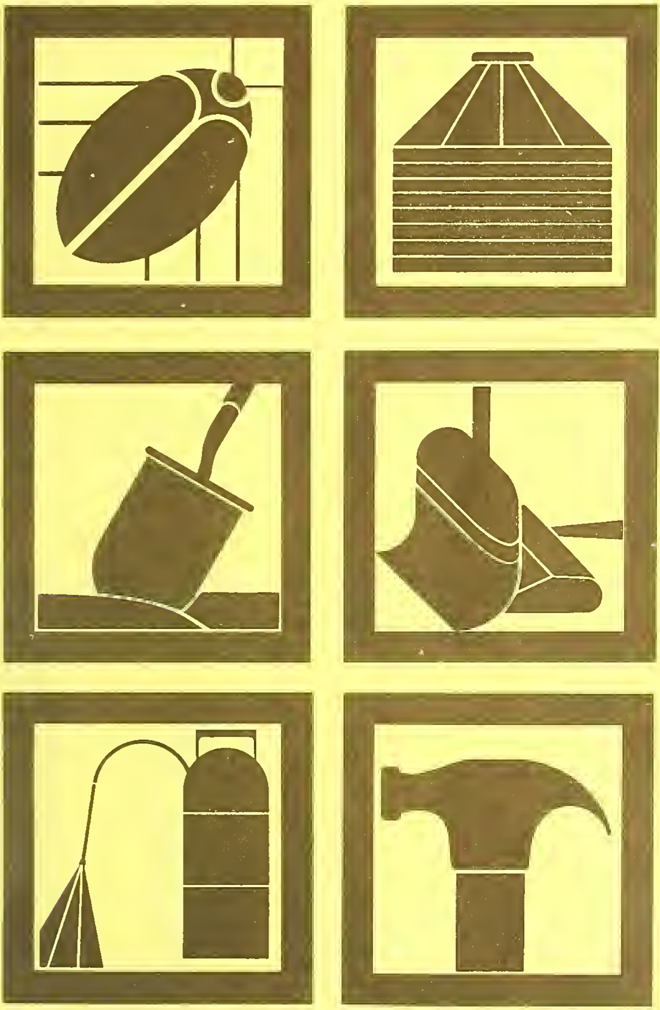

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Pest Management in Stored Grain

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Stored Grain Insect and Mold Attacks Can Be Prevented

Insect infestation and molds in stored grain are the principal causes of wasted grain and lost profits. Most such damage and loss can be prevented if *all* mentioned procedures are followed at appropriate times.

Clean Harvesting Equipment and Bins Before Storage

The most frequent source of insects infecting new grain is the previous year's old grain residue remaining in harvesting equipment, within the bin, and under the bin's drying floor. A bin equipped with perforated drying floors requires floor section removal to clean residues underneath. This residue (insect-infected grain, broken kernels, and dust) must be removed and disposed of far enough from the bin site so it will not lead to an infestation of the newly stored grain. Grain should not be stored near feed rooms, stables, or animal feeders as these areas often harbor insects which may infest the stored grain.

Spray the Bin with a Residual Insecticide

After the bin is cleaned, spray an approved residual insecticide on both outside and inside bin walls, on the bin floor, and beneath the drying floor. Approved insecticide recommendations can be obtained from your local county Extension office. Spraying without adequate cleaning will generally not be effective.

Store Dry Clean Grain

Grain that is harvested dry and free of broken kernels and other dockage is less likely to be attacked by insects and molds. Harvest at the lowest moisture practicable, and use dryers to further reduce the moisture content to a storable level of 14 percent or below. Corn can be stored at 15 percent moisture content in some areas. Adjust harvesting machinery to minimize the amount of dockage in the grain, or screen the grain as it is binned. Clean grain can be more easily and uniformly aerated, which in turn minimizes insect and mold damage. Fumigants and protectants are also more effective in clean grain.

Level the Grain Surface

Do not overfill the bin. Space (headroom) must be left on top of the grain for examiniation and sampling. After the bin is filled, level the grain's surface. Application of insecticidal treatment, aeration, and fumigation cannot be done effectively on uneven grain surfaces. Moisture condensation and subsequent mold and insect problems are more likely to develop in mounds of grain.

Apply a Grain Protectant Surface Treatment

Grain placed in storage at moisture contents below 13 percent (including old grain that is being moved to other structures) can be treated with an insecticide to protect against insect invasion. Grain protectants quickly lose their effectiveness on grain that is above 13 percent moisture content or at temperatures above 90° F. If grain is treated at temperatures above 90° F, it should be aerated as soon as possible to lower the temperature. Current recommendations can be obtained from your local county agricultural agent. Recommended insecticides may help prevent insects from entering the grain mass. This surface treatment does not control moths.

Make Needed Bin Repairs

Screen or seal openings to keep out rodents and birds, and eliminate places that will harbor old grain (corners, under bin floors, etc.) The structure should be made tight to prevent water and air leaks and have sealable air vents to facilitate later fumigation, if necessary. The bin should be equipped with adequate aeration fans and ducts that are maintained in good working order.

Prevent and Control Moths

Surface or headroom space treatments are required to control moth infestations in stored grain. These treatments will not quickly control an already existing infestation, so insecticides recommended by your county agent should be applied before infestation occurs. Follow label directions for recommended rates of application.

Aerate the Grain to Control Insects and Mold

Aeration of grain to reduce and equalize the temperature is vital to insect and mold prevention. Insects and molds develop more slowly (or not at all) at low temperatures. Moisture migration and condensation (which favor insects and molds) do not occur if uniform temperatures are maintained. Aeration while turning, stirring, or otherwise physically disturbing the grain can aid in controlling crusting or caking that result from insect- or moisture-induced hot spots.

Operate aeration equipment in the fall to cool stored grain as soon as average air temperatures are 10° F or more below the grain temperature. Once begun, the cooling process should proceed uninterrupted until the entire grain mass is *uniformly* cooled. Otherwise, a moist layer of grain may develop along a stalled cooling front (or zone) in the bin and cause mold development. Excessive grain cooling or freezing, unless needed for insect control, wastes energy and causes grain shrinkage or weight loss. Spring moisture can condense on grain that is more than 20° F cooler than

the air temperature. If further cooling is done, the entire bin should be uniformly cooled to prevent moisture migration and condensation.

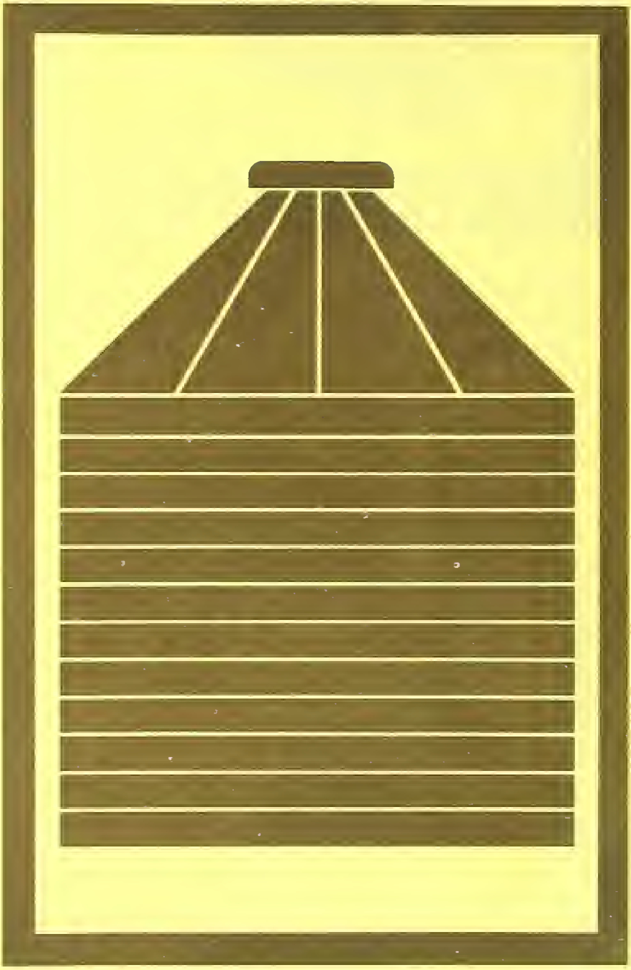
Be Sure to Examine the Grain Regularly

Temperature, moisture levels, and the biological activity in stored grain change throughout the storage period. Therefore, inspect the grain at 2- to 4-week intervals (less often during the winter) to monitor these factors. Sample from top to bottom, obtaining at least 1 pint of grain per 1,000 bushels. Screen samples for insects and dockage. Measure moisture content and temperature throughout the bin to pinpoint spots where condensation or insects may be concentrated. During the inspection be alert to the presence of odors, caking, and crusting, which are indicators of moisture and/or insect problems.

For More Information

If infestation occurs in spite of these precautionary measures, fumigation of the grain will be necessary. Consult your local Extension agent for information on when and how to fumigate.

For additional assistance with specific problems, consult your local Extension office staff.



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